

# **WISHA REGIONAL DIRECTIVE**

**WISHA Services**

**Department of Labor and Industries**

## **5.40 PVC Pipe in Compressed Air Systems Date Issued: March 20, 2002**

### **I. Background**

In enforcing the Washington Industrial Safety and Health Act (WISHA), the Department of Labor and Industries (L&I) sometimes encounters the use of PolyVinyl Chloride (PVC) pipe as part of compressed air systems. Compressed gas contains a huge amount of stored energy. Any external incidental damage to the pipe, a nip or an unusual pressure surge in the system can greatly compromise the integrity of PVC pipe. PVC pipe also can be damaged by oil and other contaminants contained in the air supply. Subsequently, failure of the pipe can result in an explosion with fragments of shattered pipe flying in all directions.

The potential for injuries resulting from such accidents is significant. There is a history of explosion in the state and the hazard should be widely recognized. Manufacturers will not accept liability for unapproved PVC piping used to carry compressed air. Furthermore, the Plastic Pipe Institute has warned against using PVC pipe for compressed air purposes.

Some manufacturers have developed plastic pipes that can be used for compressed air (for example, Acrylonitrile-Butadiene-Styrene pipes). Such pipes are marked as "approved" for compressed air supply.

It is also possible for employers to enclose completely, bury or adequately guard existing PVC pipe used in compressed air systems with materials that have sufficient strength to totally contain any pipe fragments in the event of an explosion.

### **II. Scope**

This WISHA Regional Directive (WRD) applies to all WISHA enforcement and consultation activities involving the requirements of WAC 296-800-11005 as they relate to the use of PVC pipe in compressed air systems. It adopts the substance of WISHA Interim Interpretive Memorandum #96-11-O, which it replaces.

### **III. Application Guidance**

*Can an employer be cited for use of PVC pipe in a compressed air system?*

Yes. Unless the manufacturer approves the pipe for such use or the hazard has been fully eliminated by other means, the use of PVC pipe in a compressed air system is a violation of WISHA's general requirements. Under WAC 296-800-11005 (and similar language in several industry-specific standards), employers have an obligation to "provide a workplace free from recognized hazards." Given manufacturers' recommendations regarding the appropriate use of PVC pipe and the degree of the hazard presented by the use of such pipe in compressed air systems, it is appropriate to apply the employer's "safe workplace" or "general duty" obligation to such use of PVC pipe.

### **IV. Enforcement and Consultation Protocols**

*How are WISHA staff expected to describe and document violations related to improper PVC pipe use?*

WISHA consultation and enforcement staff must use the "safe workplace" standard as appropriate to address employer use of unapproved plastic pipe in compressed air systems, unless the employer has taken other steps (enclosure, burial, etc.) to address the hazard *completely*. Documentation supporting any such citations should include the type of pipe, the air pressure in the air line and the proximity of employees to the hazard.

Approved: \_\_\_\_\_

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For further information about this or other WISHA Regional Directives, you may contact WISHA Policy & Technical Services at P.O. Box 44648, Olympia, WA 98504-4648 -- or by telephone at (360)902-5503. You also may review policy information on the WISHA Website (<http://www.wa.gov/lni/wisha>).